



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,654	07/07/2006	Yusuke Konagai	YAMA:135	5543
37013 7590 01/29/2010 ROSSI, KIMMS & McDOWELL LLP. 20609 Gordon Park Square, Suite 150 Ashburn, VA 20147				
EXAMINER				
FAULK, DEVONAE				
ART UNIT		PAPER NUMBER		
2614				
NOTIFICATION DATE		DELIVERY MODE		
01/29/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@rkmlegalgroup.com

### Office Action Summary

**Application No.**

10/585,654

**Applicant(s)**

KONAGAI ET AL.

**Examiner**

DEVONA E. FAULK

**Art Unit**

2614

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-5,7-10,18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-10 and 20 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/5/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. The finality of the rejection of the last Office action is withdrawn.
2. The indicated allowability of claims 1,3,5,9 and 20 is withdrawn in view of the newly discovered reference(s) to Bank and Furuta. Rejections based on the newly cited reference(s) follow.
3. Claims 2,6 are cancelled and claims 11-17 and 19 are withdrawn.

***Claim Objections***

4. Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Bank et al. (WO 99/08479).

Regarding claim 1, Bank discloses loudspeaker apparatus comprising:

a loudspeaker array comprising a plurality of loudspeaker elements arranged in a plurality of stacked horizontal rows (Figures 1 and 7); and

an audio signal processing unit that drives a plurality of loudspeaker blocks including at

least a center-channel loudspeaker block, a front left-channel loudspeaker block, and a front right-channel loudspeaker block each composed of a group of loudspeaker elements in the loudspeaker array, respectively with a plurality of audio signals including at least a front left- channel signal, a front right-channel signal, and a center-channel signal (page 13, lines 16-30),

and wherein a center-channel loudspeaker block includes at least all of the loudspeaker elements in one of the horizontal row (Figure 1 and Figure 7).

All elements of claims 4 and 7 are comprehended by the rejection of claim 1 (Figure 1)

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bank et al. (WO 99/08479).

9. Regarding claim 20, the examiner asserts that Bank discloses a loudspeaker block for a left, right, center channel (Figures 1 and 7). Regarding the limitation recited in claim 20, the examiner asserts that this is a matter of design choice as to what each block is composed of and therefore it would be obvious to modify Bank so that the left, right and center channel blocks are composed as claimed for the benefit of meeting a design specification.

10. Claims 3,5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bank et al. (WO 99/08479) in view of Furuta et al. (JP 06-225379).

Regarding claim 3, Bank discloses loudspeaker elements contained in rows. Banks fails to disclose wherein at least some of the loudspeaker elements contained in one of the rows of one of the loudspeaker blocks are also part of another of the loudspeaker blocks. Bank discloses loudspeaker elements contained in rows. Banks fails to disclose wherein at least some of the loudspeaker elements contained in one of the rows of one of the loudspeaker blocks are also part of another of the loudspeaker blocks (Figure 6, the high frequency signal is allocated to one speaker in array 3 and the low frequency signal is allocated to two speakers in array 2; ¶¶ 0019 under DETAILED DESCRIPTION section). It would have been obvious to modify Bank so that at least some of the loudspeaker elements contained in one of the rows of one of the loudspeaker blocks are also part of another of the loudspeaker blocks for the benefit of providing a more directional speaker device.

Regarding claim 5, Bank disclose loudspeaker blocks. Bank fails to teach of loudspeaker blocks for a high and low range. Furuta discloses dividing an audio signal processing unit that divides an audio signal into a plurality of frequency band signals, including a high frequency range signal and a low frequency range signal (filters 71-78 of Figure 5, 71a-78a of Figure 6, 81-88 of Figure 7; ¶¶ 0018- ¶¶ 0021 under DETAILED DESCRIPTION section). Regarding the "and a width of the loudspeaker block for the high range signal for each of the left and right channel signals is smaller than a width of the loudspeaker block for the low range signal

for each of the left and right channel signals”, the examiner asserts that it is a matter of design choice as to how the blocks are separated. It would have been obvious to modify Bank so that the loudspeaker blocks are composed or separated as claimed for the benefit of meeting a design specification.

Regarding claim 9, Bank discloses stacked rows. Bank fails to disclose that the rows are horizontally offset from each other so that vertically adjacent loudspeaker elements in the adjacent stacked horizontal rows are horizontally offset from one another. Furuta discloses (See Figure 1). It would have been obvious to modify Bank so that the rows are horizontally offset as taught by Furuta for the benefit of widening the frequency band in the high region side.

11. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuta et al. (JP 06-225379).

Regarding claim 8, Furuta discloses a loudspeaker apparatus (Figures 1,5-8) comprising:

a loudspeaker array comprising a plurality of loudspeaker elements arranged in a plurality of stacked horizontal rows (loudspeaker arrays 2,3, Figures 1,5-8; ¶ 0011 under DETAILED DESCRIPTION section); and  
an audio signal processing unit that divides an audio signal into a plurality of frequency band signals, including a high frequency range signal and a low frequency range signal

(filters 71-78 of Figure 5, 71a-78a of Figure 6, 81-88 of Figure 7; ¶¶ 0018- ¶¶ 0021 under DETAILED DESCRIPTION section),

Furuta fails to explicitly disclose wherein the audio signal processing unit drives a first loudspeaker block composed of less than all of the speaker elements in each of at least two rows among the plurality of stacked horizontal rows of loudspeakers elements with the high frequency range signal, and wherein the audio signal processing unit drives a second loudspeaker block composed of all of the loudspeaker elements in a single horizontal row among the plurality of stacked horizontal rows.

Furuta in Figures 5,7 and 8 show other examples of how the speakers can be allocated. Furuta fails to explicitly disclose wherein the loudspeaker blocks include a loudspeaker block for a high range and a loudspeaker block for a low range, and a width of the loudspeaker block for the high range signal is smaller than a width of the loudspeaker block for the low range signal.

As noted by prior art Furuta how the speakers are allocated is a matter of design choice according to what kind of sound environment the designer wants to create. It would have been obvious to try to modify Furuta so that the block for the high range signal is inputted in two stages or more and that the low frequency signal is inputted to a loudspeaker block constructed by the entire width of a single-stage loudspeaker row so that the desired listening environment can be created. .

All elements of claim 10 are comprehended by the rejection of claim 8 (See Figure 1).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/  
Primary Examiner, Art Unit 2614